

C. ALPINA L. Sp. Pl. i. 9 (1753). Cool woods, wet mossy openings, margins of streams, etc., southern Labrador to James Bay and northward to Alaska, southward through Newfoundland, eastern Canada, northern New England, northern New York, etc., and more locally to southern New England, Georgia, the Great Lake states, So. Dakota, etc.; also Eurasia.

GRAY HERBARIUM.

IS ASTER TARDIFLORUS A HYBRID?

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DURING the late summer of 1916, in the towns of Randolph, Gorham, and Jefferson, New Hampshire, I was on more than half-a-dozen occasions impressed by a blue-flowered *Aster* which I could not at once name. Its inflorescence at times suggested *A. cordifolius*, but the leaves were not cordate; the involucre was nearer to that of *A. puniceus*, but again the shape of the leaves failed to match. It was worthy of remark that the plant was in each instance solitary or appearing in but two or three specimens, while in each case *A. puniceus* and *A. cordifolius* were observed, usually in some abundance, near by. These facts led to the suspicion that one of the numerous hybrids of the genus had been found, and that *A. puniceus* and *A. cordifolius*, the two commonest and most generally distributed blue-flowered *Asters* of the region were its parents.¹

But my interest was further aroused when the plants in question proved, upon analysis, to match exactly the description in Gray's Manual of *Aster tardiflorus* L., and when subsequent comparison at the Gray Herbarium confirmed this diagnosis. The query, then, naturally arises whether *A. tardiflorus* is not a hybrid. Its intermediate characters can be more clearly indicated by the following résumé (compiled from the Manual descriptions of the three species I have mentioned).²

¹ The only other blue-flowered *Asters* known in the region are *A. macrophyllus* L., *A. radula* Ait., *A. foliaceus* Lindl., and *A. novi-belgii* L. The first two of these bear no resemblance to the plants in question, and the last two are of very local distribution and unknown in the neighborhood of most of the stations for the supposed hybrid.

² Points not noted in the Manual are enclosed in brackets.

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|--------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i. Color of Stem. | { | <i>cordifolius</i> [green or purple.]
<i>tardiflorus</i> [green or purple.]
<i>puniceus</i> usually purple below. |
| ii. Pubescence of Stem. | { | <i>cordifolius</i> nearly glabrous (but var. <i>Furbishiae</i> Fernald densely villous).
<i>tardiflorus</i> glabrous or subpubescent (but var. <i>vestitus</i> Fernald densely villous).
<i>puniceus</i> rough hairy in lines [but a variety from northern Maine densely villous]. |
| iii. Shape of Leaves. | { | <i>cordifolius</i> cordate, the lower on slender and naked ciliate petioles.
<i>tardiflorus</i> ovate- or oblong-lanceolate, narrowed at both ends, the lower to a winged [often ciliate] petiole, not auriculate or only obscurely so.
<i>puniceus</i> oblong-lanceolate or lanceolate, not narrowed or but slightly so to the auricled base. |
| iv. Serration | | All three have leaves sharply serrate in the middle. |
| v. Inflorescence. | | In all three paniculate. |
| vi. Height of Involucre. | { | <i>cordifolius</i> 4–6 mm.
<i>tardiflorus</i> 5–7 mm.
<i>puniceus</i> 7–12 mm. |
| vii. Involucral Bracts. | { | <i>cordifolius</i> appressed, tipped with short green points, obtuse or acutish [ca. 3-seriate].
<i>tardiflorus</i> lax, linear or linear-subulate, subequal or 2–3-seriate.
<i>puniceus</i> loose, thin, narrowly linear, attenuate, subequal, in about 2 rows, the outer sometimes foliaceous. |
| viii. Color of Rays. | { | <i>cordifolius</i> pale blue or nearly white.
<i>tardiflorus</i> light blue.
<i>puniceus</i> lilac-blue to white. |
| ix. Length of Rays. | { | <i>cordifolius</i> [rather short, for the genus.]
<i>tardiflorus</i> [short to medium.]
<i>puniceus</i> long and showy. |

x. Date of Flowering. All three: Aug.—Oct.

xi. Range. $\left\{ \begin{array}{l} \textit{cordifolius} \text{ E. Que. — Ia. — Ga. — Mo.} \\ \textit{tardiflorus} \text{ N. B. — Pa.} \\ \textit{puniceus} \text{ Nfd. — Man. — Ga.} \end{array} \right.$

To one who examines these points it will, I think, appear that a plant more exactly intermediate between two quite distinct species could hardly be found. And this would be even more apparent to one who should examine in actual specimens the shape of the leaf of *A. tardiflorus*, which is the only natural intermediate that one could expect between a cordate petioled leaf and an oblong-lanceolate auricled one. The supposed parent-species are abundant northeastward, hence it is hardly surprising that this hybrid should have appeared at various places. Material at the Gray Herbarium, however, does not indicate commonness anywhere save perhaps in the vicinity of Lisbon, New Hampshire, where it was rather often collected by the late Edwin Faxon. But, as the last summer's experience of the writer shows, when once one has learned what this plant looks like he may see it in a considerable number of places without finding anywhere more than one or two plants in a station, so that the numerous collections by Mr. Faxon need not indicate a degree of commonness that might lead one to regard *Aster tardiflorus* as an established and stable species.

The writer would be glad to learn of the observations of others in regard to this somewhat infrequently studied plant. Perhaps someone with facilities for the work might undertake to produce an artificial hybrid for comparison with *A. tardiflorus*.

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